

We claim:

1. A switch using indicators for address learning comprising:

a first activator configured to control a first indicator to indicate when a source address needs to be learned and when a source address has been learned;

a second activator configured to control a second indicator to indicate when a destination address has not been learned and when a destination address has been learned; and

a third activator configured to control a third indicator to indicate when a source address has not been learned in all switches.

2. The switch as recited in claim 1 wherein said second activator is configured to set the second indicator when there is a destination address lookup failure.

3. The switch as recited in claim 1 wherein said third activator is configured to set the third indicator if the second indicator is set before a destination address lookup, there is no destination address lookup failure and the address originated from the switch.

4. The switch as recited in claim 1 wherein said first activator configured to set the first indicator if there is a source address lookup failure or if the third indicator has been activated.

5. The switch as recited in claim 1 wherein:

    said first activator is configured to set the first indicator in a header if there is a source address lookup failure or if the third indicator has been activated; and

    said second activator is configured to set the second indicator in a header when there is a destination address lookup failure

6. The switch as recited in claim 1 wherein said third activator is configured to set the third indicator in an ARL Table if the second indicator is set before a destination address lookup, there is no destination address lookup failure and the address originated from the switch.

7. The switch as recited in claim 1 further comprising an address learner configured to learn an address when said first indicator is set.

8. The switch as recited in claim 1 further comprising an address learner configured to learn an address by storing information of an address in an ARL table.

9. A switch for address learning comprising:
- an first indicator means for indicating when a source address needs to be learned and when a source address has been learned;
- an second indicator means for indicating when a destination address has not been learned and when a destination address has been learned; and
- an third indicator means for indicating when a source address has not been learned in all switches.
10. The switch as recited in claim 9 wherein said second indicator means activates a second indicator when there is a destination address lookup failure.
11. The switch as recited in claim 9 wherein said third indicator means activates a third indicator if the F Bit is set before a destination lookup, there is no destination lookup failure and the address originated from the switch.
12. The switch as recited in claim 11 further wherein said first indicator means activates a second indicator if there is a source address lookup failure or if the third indicator has been activated.

13. The switch as recited in claim 9 further comprising an address learner means for learning an address when said first indicator means indicates that a source address needs to be learned.

14. The switch as recited in claim 9 further comprising an address learner means for learning an address by storing information of an address in an ARL table.

15. A method of address learning comprising the steps of:  
receiving a packet in a switch;  
performing a destination address lookup;  
setting a first indicator if there is a destination address lookup failure;  
setting a second indicator if the first indicator was set before the destination address lookup, there is no destination lookup failure, and the switch is the originating switch;  
performing a source address lookup;  
setting a third indicator if there is a source address lookup failure or if said second indicator is set; and  
learning an address if said third indicator is set.

16. The method as recited in claim 15 wherein said first indicator and said third indicator are set in a header.

17. The method as recited in claim 15 wherein said second indicator is set in an ARL Table.